

# Volume 32, THE SCIENCE TEACHER

Index—January through December 1965

The annual index is comprised of alphabetical listings, first, of authors and second, of articles. Association activities, committee reports, and staff reports are indexed under NSTA Activities.

## Author Index

- Acker, Robert F. *Biochemical Fuel Cells*. December: 23.
- Adler, Leona K. *Scientific Terms: Do They Mean What You Say?* February: 23.
- Allen, Richard J. *Cryogenics for the Science Teacher*. March: 13.
- Alston, R. E., Mabry, Tom J., and Turner, B. L. *The Biochemical Basis of Taxonomy*. December: 19.
- Barnard, J. Darrell. *What Can Science Contribute to the Liberal Education of All Children?* November: 24.
- Baumel, Howard B., and Berger, J. Joel. *Teaching from Research Papers: An Approach to Teaching Science as a Process*. April: 29.
- Berger, J. Joel, and Baumel, Howard B. *Teaching from Research Papers: An Approach to Teaching Science as a Process*. April: 29.
- Blatt, Mary M. *Concern for the Future*. January: 11. (Editorial).
- Brown, Randolph R. *Microprojectors, Microscopy, and Science—A New Look*. May: 39.
- Bruner, Jerome S. *Liberal Education for All Youth*. November: 19.
- Bryan, J. Ned. *P. L. 89-10 and the Science Teacher*. September: 10.
- Bryan, W. Ray, and Kieley, James F. *Potential Biohazards in Cancer Research*. February: 31.
- Cannon, Julie R. *Stereograms in Science Education*. December: 43.
- Carleton, Robert H. *Science and Industry*. October: 16. (Editorial).
- Carruth, Harold R., and Hichborn, Robert P. *Trying Team Teaching in Science*. November: 29.
- Carter, Meredith L. *A Unit on Topographic Maps*. December: 40.
- Casey, J. E. *Science and the Technical Occupations*. March: 31.
- Chatham, I. W. *Imagination—Too Long Neglected*. October: 27.
- Dalton, Robert H. *The Education of Chemists . . . for Industrial Research*. April: 17.
- Dassel, Herschel G. *After-School Science: Johnny Will Stay After School*. November: 42.
- Davenport, Frank T. *Teaching: Discipline by Contract*. January: 48. (Classroom Ideas).
- David, E. E., Jr. *A Role for Engineering and Technology in School Education*. March: 17.
- DeHaan, Robert L. *Science Students and the Scientific Community*. November: 12. (Editorial).
- DeRose, James V. *Theory Into Action—Contributions to a Unified Science Program*. May: 83. *Teaching Today: The Need for Reorientation*. September: 9. (Editorial). *Responsibility for Quality in Science Teaching*. December: 10. (Editorial).
- Doty, Gene. *An Inexpensive Cork and Rubber-Stopper Storage Bin*. September: 49. (Classroom Ideas).
- Douglas, Richard M. *Science and the Humanities*. May: 16.
- Drummond, Ainslie H., Jr. *Teaching: Information Bridges—Laboratory to Classroom*. February: 19.
- Eisler, Sanford M. *Medical Technology—A New Course for the Inner City High School*. March: 33. (See also *Clarifying Terms in the Medical Laboratory*, TST Forum, October: 66).
- Eiss, Albert F. *The Average Student Neglected?* March: 12. (Editorial).
- Fabiano, Eleanor, and Liberson, Eunice. *Teaching Biology to Non-Academic Students*. November: 30.
- Fehlman, W. M. *Mounting of Geological Specimens*. May: 58. (Classroom Ideas).
- Feinstein, H. L. *Chemistry: Van't Hoff's Law of Mobile Equilibrium*. March: 51. (Classroom Ideas).
- Fox, Fred W. *Levels of Performance in Teaching*. April: 31.
- Fraser, W. Clayton, Sr. *Lichen . . . A Simple Pioneer?* April: 12.
- Gallagher, Harry S., and Lefler, Ralph W. *Laboratory Design to Implement Multidisciplinary Teaching*. March: 41.
- Gantert, R. L. *Memory-Learning Behavior of Lower Animals*. October: 58. (Classroom Ideas).
- Geddes, L. A. *The Quantitative Measurement of Physiological Events*. March: 22.
- Gilleland, Frank W. " . . . And the Truth Shall Make Them Free." November: 33.
- Glass, Bentley. *Theory Into Action—A Critique*. May: 29.
- Glick, Edith H. *Is Your Marking System Accurate?* December: 47. (Classroom Ideas).
- Hale, Helen E. *Morale Builders for Science Teachers*. May: 12. (Editorial).
- Harbeck, Richard M. *Probing Our Planet*. December: 15.
- Hazeltine, Barbara Lee. *The Information Explosion—Do Teachers Need a Part in Information Retrieval?* February: 26.
- Hichborn, Robert P., and Carruth, Harold R. *Trying Team Teaching in Science*. November: 29.
- Hicks, Steacy D. *Ocean Tides*. December: 11.
- Hoff, Darrel, and Richter, Erwin. *Autoradiographs at Reasonable Cost*. September: 46. (Classroom Ideas).
- Horbett, Thomas A. *The Method of Least-Squares and the Woody Plant Cell*. January: 45. (Classroom Ideas).
- James, John R., and Lokke, Donald H. *Energy Concepts in Earth Science*. January: 43. (Classroom Ideas).
- Jennings, Robert K. *H<sub>2</sub>O in Biological Systems*. February: 15.
- Jones, Dee W. *Summer in Medical Research*. April: 61.
- Kane, Julian. *A Geological Trip to Iceland, Scandinavia, and Switzerland*. May: 33.
- Kelanic, Richard A. *Some Safer Ways*. September: 48. (Classroom Ideas).
- Kerr, Edward. *Outdoor Laboratories Unlimited*. September: 18.
- Kieley, James F., and Bryan, W. Ray. *Potential Biohazards in Cancer Research*. February: 31.
- Kline, Morris. *The Liberal Education Values of Science*. November: 22.
- Krause, Leonard M. *The Research-Approach Club in a Suburban Community*. March: 36.
- Kurtz, Edwin B., Jr. *Help Stamp Out Non-Behavioral Objectives*. January: 31.
- Latané, Robert M. *How Parents Can Help in Physics*. March: 53.
- Lauffer, Max A. *The Education of Chemists . . . for Academic Research*. April: 21.
- Lauren, Paul M. *Chemistry: The Dynamics of a Primary Cell*. February: 47. *Separating Glass Tubing from Rubber Stoppers, and Precautions for Reduction of Copper Oxide*. March: 54. *The Dynamics of an Electrolysis*. October: 60. *Electrolysis of Aqueous Saturated Potassium Iodide: A Student Demonstration*. October: 61. (All titles Classroom Ideas).
- Lefler, Ralph W., and Gallagher, Harry S. *Laboratory Design to Implement Multidisciplinary Teaching*. March: 41.
- Lener, Walter. *How to Succeed in Biology—by Really Trying*. December: 29.
- Lenhoff, Howard M. *The Scientist as Communicator*. February: 14. (Editorial).
- Lerner, Morris R. *Building a Science Program*. November: 28.
- Liberson, Eunice, and Fabiano, Eleanor. *Teaching Biology to Non-Academic Students*. November: 30.
- Lisonbee, Lorenzo. *Thwarting the Anti-Evolution Movement in Arizona*. February: 35.
- Llewellyn, Gerald. *Organization of Reference Books for Classroom Use*. November: 47.
- Lockard, J. David. *The Secondary School Curriculum Projects*. May: 48.
- Lokke, Donald H., and James, John R. *Energy Concepts in Earth Science*. January: 43. (Classroom Ideas).
- Lombard, John W. *Preparing Better Classroom Tests*. October: 33.
- Mabry, Tom J., Alston, R. E., and Turner, B. L. *The Biochemical Basis of Taxonomy*. December: 19.
- Mallinson, George G. *Science Motivation*

- Project I: Motivation and Achievement of Students in Secondary-School Science.* April: 35. (Research and Innovation).
- Moutvic, J. C. *New Technique for Photomicrographs.* May: 43.
- Murphy, Glenn W. *Increasing Motivation in General Science.* October: 61. (Classroom Ideas).
- Nace, Raymond L. *Global Thirst and the International Hydrological Decade.* January: 13.
- Narasimhan, C. V. *The United Nations and Technological Change.* May: 20.
- Neidig, H. A. *The Education of Chemists . . . for Teaching.* April: 21.
- Oltman, Roy E. *What Is a River?* January: 22.
- Pella, Milton O. *Science Needed by All.* September: 51.
- Ponnamperuma, Cyril. *The Search for Extraterrestrial Life.* October: 21.
- Porges, Frederick. *Instrumentation . . . Its Career Possibilities.* March: 27.
- Reed, Darrell L. *A New Science Wing and Planetarium at Newburgh Free Academy.* October: 47.
- Richardson, John S. *UNESCO and The Science Teacher.* December: 28.
- Richter, Erwin, and Hoff, Darrel. *Autoradiographs at Reasonable Cost.* September: 46. (Classroom Ideas).
- Riessman, Frank. *Education for the Culturally Deprived Child.* November: 14.
- Robbins, Marilyn. *Teaching Library Skills to Junior High Honor Students.* February: 48. (Classroom Ideas).
- Robinson, Buel C. *A Bridge Design Contest.* May: 56. (Classroom Ideas).
- Romig, Ronald F. *A Lab in the Spatial Nature of the Atom.* May: 59. (Classroom Ideas).
- Roy, Chalmer J. *Science Teaching: Let Us Fly Away—Together.* April: 8. (Editorial).
- Russell, James E. *Theory Into Action as a Projection of the Rational Tradition.* May: 27.
- Ruth, Thomas E. *The Reynolds Experiment for Flow Demonstration.* November: 48.
- Schubert, Leo. *The 1965 Purchase Guide for Programs in Science and Mathematics.* March: 20.
- Schumm, Ruth. *Blackboard in the Jungle.* October: 40.
- Sears, Paul B. *Resources Are for Using . . . Wisely.* September: 12.
- Sharrah, Paul C., and Woodruff, L. V. *Autoradiograph of Welsbach Gas Mantle.* March: 49. (Classroom Ideas).
- Shea, James H. *The Earth Science Curriculum Project—A Progress Report.* February: 43.
- Shneour, Elie A. *Biology Meets Astronomy.* October: 17.
- Shoresman, Peter B. *A Technique to Clarify the Nature of Theories.* May: 53. (Classroom Ideas).
- Showalter, Victor, and Slesnick, Irwin. *Student Investigations.* (Abstracts of FSA 1964 award-winning reports) January: 39. April: 49. (Abstracts of 1965 award-winning reports) October: 42. November: 36.
- Skinner, Ray, Jr., *Earth Science: Serendipity in Science.* April: 47. (Classroom Ideas).
- Slesnick, Irwin and Showalter, Victor. *Student Investigations.* (Abstracts of FSA 1964 award-winning reports) January: 39. April: 49. (Abstracts of 1965 award-winning reports) October: 42. November: 36.
- Smith, Ezra Sheldon, III. *Building and Calibrating a Simple Stroboscope.* November: 46. (Classroom Ideas).
- Steinberg, Malcolm S. *The New Embryology.* October: 45.
- Stephan, Charles R. *The Oceans . . . Promise and Challenge.* April: 9.
- Sternglass, E. J. *Pure or Applied Science: Must We Choose?* April: 24.
- Stotler, Donald W. *Science, Heuristics, and Humanism.* October: 28.
- Subarsky, Zachariah. *Science Education—East Africa.* February: 40.
- Swenson, Herbert A. *Minerals in Water.* January: 17.
- Taylor, George C., Jr. *Hydrology—the Science of Water.* January: 26.
- Taylor, John K. *Moderation in Instrumentation.* March: 18.
- Thomas, Peter A. *Biology: Hydras—Relaxation and Wholmount Preparation.* March: 54. (Classroom Ideas).
- Trumbull, Merlin L. *Clarifying Terms in the Medical Laboratory.* October: 66.
- Turner, B. L., Mabry, Tom J., and Alston, R. E. *The Biochemical Basis of Taxonomy.* December: 19.
- Upchurch, Richard L. *Debating in Junior High Science.* April: 46. (Classroom Ideas).
- Vrana, Ralph S. *Experiments with Ceiling Tiles.* April: 39. (Classroom Ideas).
- Waetjen, Walter B. *Learning and Motivation: Implications for the Teaching of Science.* May: 22.
- Watts, Meltha; Woodburn, John H. and Ruth. *The 1965 IYSF and European Summer Tour for Science Students.* December: 26.
- Westmeyer, Paul. *School-College Cooperation in Chemistry Course Development.* April: 33. *Do It Yourself—But Wear Goggles.* September: 20.
- Woodburn, John H. and Ruth, and Watts, Meltha. *The 1965 IYSF and European Summer Tour for Science Students.* December: 26.
- Woodruff, L. V., and Sharrah, Paul C. *Autoradiograph of Welsbach Gas Mantle.* March: 49. (Classroom Ideas).

## Article Index

- After-School Science: Johnny Will Stay After School.* Herschel G. Dassel. November: 42.
- " . . . And the Truth Shall Make Them Free." Frank W. Gilleland. November: 33.
- Anti-Evolution Movement in Arizona, Thwarting the.* Lorenzo Lisonbee. February: 35.
- Autoradiograph of Welsbach Gas Mantle.* Paul C. Sharrah and L. V. Woodruff. March: 49. (Classroom Ideas).
- Autoradiographs at Reasonable Cost.* Darrel Hoff and Erwin Richter. September: 46. (Classroom Ideas).

- Average Student Neglected?, The.* Albert F. Eiss. March: 12. (Editorial).
- Biochemical Basis of Taxonomy, The.* Tom J. Mabry, R. E. Alston, and B. L. Turner. December: 19.
- Biochemical Fuel Cells.* Robert F. Acker. December: 23.
- Biology: Hydras—Relaxation and Wholmount Preparation.* Peter A. Thomas. March: 54. (Classroom Ideas).
- Biology Meets Astronomy.* Elie A. Shneour. October: 17.
- Blackboard in the Jungle.* Ruth Schumm. October: 40.
- Building a Science Program.* Morris R. Lerner. November: 28.
- Building and Calibrating a Simple Stroboscope.* Ezra Sheldon Smith, III. November: 46. (Classroom Ideas).
- Cancer Research, Potential Biohazards in.* James F. Kieley and W. Ray Bryan. February: 31.
- Chemistry: The Dynamics of a Primary Cell.* Paul M. Lauren. February: 47. (Classroom Ideas).
- Chemistry: Van't Hoff's Law of Mobile Equilibrium.* H. L. Feinstein. March: 51. (Classroom Ideas).
- Clarifying Terms in the Medical Laboratory.* Merlin L. Trumbull. October: 66.
- Conservation: Concern for the Future.* Mary M. Blatt. January: 11. (Editorial).
- Cryogenics for the Science Teacher.* Richard J. Allen. March: 13.
- Debating in Junior High Science.* Richard L. Upchurch. April: 46. (Classroom Ideas).
- Do It Yourself—But Wear Goggles.* Paul Westmeyer. September: 20.
- Earth Science Curriculum Project—A Progress Report.* The. James H. Shea. February: 43.
- Earth Science: Serendipity in Science.* Ray Skinner, Jr. April: 47. (Classroom Ideas).
- Editorials: Conservation: Concern for the Future.* Mary M. Blatt. January: 11. *The Scientist as Communicator.* Howard M. Lenhoff. February: 14. *The Average Student Neglected?* Albert F. Eiss. March: 12. *Let Us Fly Away—Together.* Chalmer J. Roy. April: 8. *Morale Builders for Science Teachers.* Helen E. Hale. May: 12. *Teaching Today: The Need for Reorientation.* James V. DeRose. September: 9. *Science and Industry.* Robert H. Carleton. October: 16. *Science Students and the Scientific Community.* Robert L. DeHaan. November: 12. *Responsibility for Quality in Science Teaching.* James V. DeRose. December: 10.
- Education of Chemists . . . for Academic Research.* Max A. Lauffer. April: 21.
- Education of Chemists . . . for Industrial Research.* Robert H. Dalton. April: 17.
- Education of Chemists . . . for Teaching.* H. A. Neidig. April: 21.
- Education for the Culturally Deprived Child.* Frank Riessman. November: 14.
- Electrolysis of Aqueous Saturated Potassium Iodide: A Student Demonstration.* Paul M. Lauren. October: 61. (Classroom Ideas).
- Electrolysis, The Dynamics of an.* Paul M. Lauren. October: 60. (Classroom Ideas).

*Embryology, The New.* Malcolm S. Steinberg. October: 45.

*Energy Concepts in Earth Science.* Donald H. Lokke and John R. James. January: 43. (Classroom Ideas).

*Engineering and Technology in School Education, A Role for.* E. E. David, Jr. March: 17.

*Experimentation with Animals in School Laboratories—Some Questions and Some Answers.* September: 36.

*Experiments with Ceiling Tiles.* Ralph S. Vrana. April: 39. (Classroom Ideas).

*Extraterrestrial Life, The Search for.* Cyril Ponnampuram. October: 21.

*Ford-FSA Awards: The 1965. National Winners.* September: 23.

*Geological Specimens, Mounting of.* W. M. Fehlman. May: 58. (Classroom Ideas).

*Geological Trip to Iceland, Scandinavia, and Switzerland.* A. Julian Kane. May: 33.

*Global Thirst and the International Hydrological Decade.* Raymond L. Nace. January: 13.

*H<sub>2</sub>O in Biological Systems.* Robert K. Jennings. February: 15.

*How to Succeed in Biology—by Really Trying.* Walter Lener. December: 29.

*Hydrology—the Science of Water.* George C. Taylor, Jr. January: 26.

*Imagination—Too Long Neglected.* I. W. Chatham. October: 27.

*Increasing Motivation in General Science.* Glenn W. Murphy. October: 61. (Classroom Ideas).

*Inexpensive Cork and Rubber-Stopper Storage Bin, An.* Gene Doty. September: 49. (Classroom Ideas).

*Information Explosion, The.—Do Teachers Need a Part in Information Retrieval?* Barbara Lee Hazeltine. February: 26.

*Instrumentation . . . Its Career Possibilities.* Frederick Porges. March: 27.

*Is Your Marking System Accurate?* Edith H. Glick. December: 47.

*IYSF and European Summer Tour for Science Students, The 1965.* Meltha Watts and John H. and Ruth Woodburn. December: 26.

*Lab in the Spatial Nature of the Atom.* A. Ronald F. Romig. May: 59. (Classroom Ideas).

*Laboratory Design to Implement Multidisciplinary Teaching.* Ralph W. Lefler and Harry S. Gallagher. March: 41.

*Learning and Motivation: Implications for the Teaching of Science.* Walter B. Waetjen. May: 22.

*Levels of Performance in Teaching.* Fred W. Fox. April: 31.

*Liberal Education for All Youth.* Jerome S. Bruner. November: 19.

*Liberal Education Values of Science, The.* Morris Kline. November: 22.

*Lichen . . . A Simple Pioneer?* W. Clayton Fraser, Sr. April: 12.

*Medical Technology—A New Course for the Inner City High School.* Sanford M. Eisler. March: 33.

*Memory-Learning Behavior of Lower Animals.* R. L. Gantert. October: 58. (Classroom Ideas).

*Method of Least-Squares and the Woody Plant Cell, The.* Thomas A. Horbett. January: 45. (Classroom Ideas).

*Microprojectors, Microscopy, and Science—A New Look.* Randolph R. Brown. May: 39.

*Minerals in Water.* Herbert A. Swenson. January: 17.

*Moderation in Instrumentation.* John K. Taylor. March: 18.

*Morale Builders for Science Teachers.* Helen E. Hale. May: 12. (Editorial).

*Natural Beauty, White House Conference on.* September: 14.

*New Science Wing and Planetarium at Newburgh Free Academy.* A. Darrell L. Reed. October: 47.

*NSTA Convention 1965.* January: 34.

*NSTA Convention Participants, 1965, Denver, Colorado.* February: 10, March: 46.

*NSTA Convention, The 1965.—Report from Denver.* May: 13, 31.

*NSTA Convention, The 1965.—Science Facilities . . . New Convention Feature.* May: 46.

*NSTA Convention 1966, New York City.* October: 55. November: 11.

*NSTA to Meet in New York in '66.* September: 42.

*NSTA Regional Conferences, 1965.* May: 50. September: 40.

*Oceans, The . . . Promise and Challenge.* Charles R. Stephan. April: 9.

*Ocean Tides.* Steacy D. Hicks. December: 11.

*Organization of Reference Books for Classroom Use.* Gerald Llewellyn. November: 47.

*Outdoor Laboratories Unlimited.* Edward Kerr. September: 18.

*P. L. 89-10 and the Science Teacher.* J. Ned Bryan. September: 10.

*Photomicrograph, New Technique for.* J. C. Moutvic. May: 43.

*Physics: A Bridge Design Contest.* Buel C. Robinson. May: 56. (Classroom Ideas).

*Physics, How Parents Can Help in.* Robert M. Latané. March: 53. (Classroom Ideas).

*Precautions for Reduction of Copper Oxide.* Paul M. Lauren. March: 54. (Classroom Ideas).

*Preparing Better Classroom Tests.* John W. Lombard. October: 33.

*Probing Our Planet.* Richard M. Harbeck. December: 15.

*Programs in Science and Mathematics, The 1965 Purchase Guide for.* Leo Schubert. March: 20.

*Pure or Applied Science: Must We Choose?* E. J. Sternglass. April: 24.

*Quantitative Measurement of Physiological Events, The.* L. A. Geddes. March: 22.

*Research-Approach Club in a Suburban Community, The.* Leonard M. Krause. March: 36.

*Resources Are for Using . . . Wisely.* Paul B. Sears. September: 12.

*Reynolds Experiment for Flow Demonstration, The.* Thomas E. Ruth. November: 48.

*Safety: Separating Glass Tubing from Rubber Stoppers.* Paul M. Lauren. March: 54. (Classroom Ideas).

## Cambosco Galvano-Voltmeter with Transparent Scale



Specifications

**Movement**—Counterbalanced, on jewel bearings. Current paths may be traced along clearly visible connections.

**Scale**—Of plexiglass with bold black figures and graduations against which the red-tipped pointer stands out in relief.

**Case**—Of mahogany, with ebony finish. Front and back of flat-drawn glass. Zero adjustment at front, pointer lock at side, and three Jack-In-Head binding posts on the broad base. Case size, 33 x 33 cm.

- You see what your students see because the scale of plexiglass is transparent.
- Pointer travel may be followed from the back of the meter while the instructor faces his class.
- Extreme sensitivity.
- Simplest thermo-couple gives a 10% deflection.
- Output of a single Silicon Solar Cell produces a deflection of 40%.
- Thrusting an alnico magnet through a Gilley Coil induces a deflection of 50%.
- Serves as Galvanometer, Milliammeter, Ammeter, Millivoltmeter or Voltmeter.
- Shunts, separately listed below, afford additional current ranges of 0-2 and 0-20 amps.

**Ranges**—(Without shunts) 0-20 M. A., 0.20 M.V. and 0.20 Volts.

No. 65-66 Galvano-Voltmeter . . . . . \$124.00

**Interchangeable Shunts**—Correctly calibrated for use with No. 65-66, which is thereby converted into a direct current ammeter of 2-amp., or of 20-amp. range.

Each shunt is equipped with Jack-In-Head binding posts.

65-72 2-Amp. Shunt . . . . . \$10.75

65-74 20-Amp. Shunt . . . . . \$10.75



**CAMBOSCO Scientific Co., Inc.**

Apparatus and Supplies for the Teaching of Science Since 1904

342 WESTERN AVENUE • BOSTON, MASSACHUSETTS 02135



Safety: *Some Safer Ways*. Richard A. Kelanic. September: 48. (Classroom Ideas).

School-College Cooperation in Chemistry Course Development. Paul Westmeyer. April: 33.

Science and Industry. Robert H. Carleton. October: 16. (Editorial).

Science and the Humanities. Richard M. Douglas. May: 16.

Science and the Technical Occupations. J. E. Casey. March: 31.

Science Education—East Africa. Zachariah Subarsky. February: 40.

Science, Heuristics, and Humanism. Donald W. Stotler. October: 28.

Science Motivation Project I: Motivation and Achievement of Students in Secondary-School Science. George G. Mallinson. April: 35. (Research and Innovation).

Science Needed by All. Milton O. Pella. September: 51.

Science Students and the Scientific Community. Robert L. DeHaan. November: 12. (Editorial).

Science Teaching: *Let Us Fly Away—Together*. Chalmer J. Roy. April: 8. (Editorial).

Science Teaching Today: *The Dimensions of the Task*. January: 35. (NSTA Convention 1965).

Scientific Terms: *Do They Mean What You Say?* Leona K. Adler. February: 23.

Scientist as Communicator. The. Howard M. Lenhoff. February: 14. (Editorial).

Secondary Schools. 1964-65, *Some Statistics of U.S.* September: 30.

Secondary School Curriculum Projects, *The*. J. David Lockard. May: 48.

Smithsonian Institution Marks Founder's Bicentennial. December: 31.

Space Science, *Teaching Ideas for*, April: 44.

Stereograms in Science Education. Julie R. Cannon. December: 43.

Student Investigations. Victor Showalter and Irwin Slesnick. (Abstracts of FSA 1964 award-winning reports). January: 39. April: 49. (Abstracts of 1965 award-winning reports). October: 42. November: 36.

Summer in Medical Research. Dee W. Jones. April: 61.

Teaching Biology to Non-Academic Students. Eunice Liberson and Eleanor Fabiano. November: 30.

Teaching: *Discipline by Contract*. Frank T. Davenport. January: 48. (Classroom Ideas).

Teaching from Research Papers: *An Approach to Teaching Science as a Process*. Howard B. Baumel and J. Joel Berger. April: 29.

Teaching: *Help Stamp Out Non-Behavioral Objectives*. Edwin B. Kurtz, Jr. January: 31.

Teaching: *Information Bridges—Laboratory to Classroom*. Ainslie H. Drummond, Jr. February: 19.

Teaching Library Skills to Junior High Honor Students. Marilyn Robbins. February: 48. (Classroom Ideas).

Teaching Today: *The Need for Reorientation*. James V. DeRose. September: 9. (Editorial).

Technique to Clarify the Nature of Theories. A. Peter B. Shoresman. May: 53. (Classroom Ideas).

Theory Into Action—*A Critique*. Bentley Glass. May: 29.

Theory Into Action—*Contributions to a Unified Science Program*. James V. DeRose. May: 83.

Theory Into Action as a Projection of the Rational Tradition. James E. Russell. May: 27.

Topographic Maps, *A Unit on*. Meredith L. Carter. December: 40.

Trying Team Teaching in Science. Harold R. Carruth and Robert P. Hichborn. November: 29.

TST Forum. Science Needed by All. Milton O. Pella. September: 51. *Clarifying Terms in the Medical Laboratory*. Merlin L. Trumbull. October: 66.

UNESCO and the Science Teacher. John S. Richardson. December: 28.

United Nations and Technological Change. The. C. V. Narasimhan. May: 20.

Water Problem: *Our Last Valley—Who Will Listen?* December: 33.



IN MORE THAN 30 COUNTRIES

**Why do EDUCATIONAL and RESEARCH Institutions rely on the E & M PHYSIOGRAPH?**

- Versatility
- Simplicity of Operation
- Proven Reliability and Accuracy
- Rugged, Student-Proof Construction
- Transducers for Virtually Every Physiological Function

Complete Recording Systems, Including:  
Stimulators—Respirators—Cardiotachs—Cuff Pumps—Defibrillators—Accessories  
Physiological Telemetry Systems

Factory trained E & M Sales and Service Representatives throughout the United States... E & M Distributors throughout the world.

**E & M INSTRUMENT CO., INC.**

Box 14013 • 6030 England Street • Houston, Texas 77021

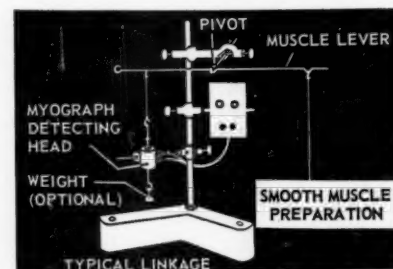
Instrumentation for Research and Education

Send for 32 page, fully-illustrated catalog #106



### E & M TELEMETRY TRANSMITTERS Biopotentials—Respiration—Voice

E & M miniature telemetry transmitters, with ranges up to 100 feet, are available for EKG, EEG, EMG, Respiration and Voice transmission. Transmitter's high input impedance permits wide variety of implanted or external electrodes. 8 gram to 18.5 gram weight assures easy carrying by subject patient, animal or bird. Companion receiver provides linear response from .06 to 100 cps. (1/2 amplitude) to give faithful waveform reproduction. Operates directly into PHYSIOGRAPH, or most oscilloscopes and graphic recorders. See receiver and 3 transmitters pictured above. E & M Instrument Co., Inc., 6030 England St., Houston, Texas 77021



### E & M's New Isotonic Myograph

Linear displacement transducer for smooth muscle and other constant tension studies: no internal hysteresis or friction; minimal system inertia; internal calibration. E & M Instrument Co., Inc., 6030 England St., Houston, Texas 77021

*What Can Science Contribute to the Liberal Education of All Children?* J. Darrell Barnard. November: 24.

*What Is a River?* Roy E. Oltman. January: 22.

*Youth Conference on the Atom.* February: 28.

## NSTA Activities

*AAAS Meeting Includes Program for Teachers.* November: 5.

*AAAS Meets This Month.* December: 4.

*Affiliation Time for FSA Chapters.* November: 75.

*Annual Meeting of NSTA Board of Directors, 1965.* September: 4.

*Board of Directors, 1965-66.* September: 5.

*Cancer, Bibliography on.* February: 74.

*Committee on Chapters and Affiliates.* April: 7.

*"Computers—Theory and Uses" Available for Classroom Use.* January: 74.

*Conferences for Junior Colleges, NSTA to Hold.* September: 76.

*Education Act of 1965 Offers New Programs.* May: 85.

*Elections Committee Invites Nominations.* October: 4.

*Financial Contributions.* September: 76.

*Ford-FSA Awards Off to a Running Start.* February: 74.

*How to Do It Series, Three New Titles.* February: 74.

*International Youth Science Fortnight, 1965.* May: 85.

*International Youth Science Fortnight for 1966.* October: 4.

*International Youth Science Fortnight and Tour Plans.* November: 75.

*Junior College Conference.* December: 4.

*Junior College Meetings Planned by NSTA.* May: 85.

*Life Members, NSTA.* March: 4.

*Magazine Advisory Board for TST.* September: 7.

*Meetings for College Teachers, NSTA Plans.* January: 4.

*NSTA Board of Directors to Hold Annual Meeting.* May: 5.

*NSTA—Committee Changes and Appointments.* February: 74.

*NSTA Committees 1965-66.* October: 90.

*NSTA Election, 1965.* February: 5.

*NSTA Executive Director Named to WCOTP Office.* January: 4.

*NSTA Election Results, 1965.* May: 4.

*NSTA Membership Is on the Move.* April: 7.

*NSTA Regional Conferences for 1965, 1966.* October: 4.

*NSTA Regional Conferences Scheduled for Fall.* April: 7.

*NSTA Staff Members, New Titles for Two.* March: 6.

*NSTA Youth Activities.* November: 75.

*New Section Officers.* September: 6.

*New Title in NSTA's "How to . . ." Series.* October: 5.

*Official NSTA Jewelry.* November: 5.

*Policies for Distribution of NSTA Publications.* September: 7.

*Scholastic Magazines Contributes to IYSF Plans.* March: 6.

*Science and Children Distribution to be Changed.* April: 7.

*Science Teacher's Calendar, The.* January: 79.

February: 79. March: 88. April: 87. May: 86. September: 79. October: 99. November: 83. December: 65.

*Second National NASA-NSTA Youth Science Congress.* May: 85.

*Staff Members Change, NSTA.* September: 8.

*State Chapters and Affiliates Are on the Move.* October: 5.

*Subscription Plan for Science and Children.* December: 4.

*Summer Meeting with NEA.* May: 4.

*Summer Reminders.* May: 86.

*TST Magazine Advisory Board Members Change.* January: 4.

*Vistas of Science® Series Offers New Titles.* September: 76.

*Weaver, R. L., Conservation Leader, Dies.* January: 74.

*Webb, Hanor, Dies.* September: 77.

*Wise, Harold E., NSTA President, 1952-53, Dies.* February: 5.

*Youth Activities Committees Reorganized.* December: 5.

*Youth Science Congresses 1965, NSTA-NASA.* January: 5.

## STRENGTHEN SCIENCE INSTRUCTION WITH REUSABLE PROGRAMMED MATERIAL

**CHEMISTRY I: Atomic Structure and Bonding**, developed by BASIC SYSTEMS INCORPORATED . . . 280 pages, 804 frames, \$3.24. Response Book, 151 pages, \$.64. Teacher's Manual and separate Final Examination available upon adoption. This programmed text presents the essentials of atomic structure, chemical periods and groups, and ionic and covalent bonds. Concepts such as oxidation number and the various methods of symbolizing structure are covered.

**VECTORS: A Programmed Text for Introductory Physics**, developed by BASIC SYSTEMS INCORPORATED . . . 175 pages, 496 frames, \$2.20, paper. Teacher's Manual and Final Examination available upon adoption. Vectors leads to the mastery of coplanar vectors within six to ten hours, thus preparing the student in introductory physics for vector applications to problems in statics and dynamics.

With reasonable care and use these programs may be expected to last more than one year. Considering the low cost of the consumable Response Book for Chemistry I—only \$.64—and the few sheets of graph paper required for the course in Vectors, an educator may provide instructional materials for basic courses in chemistry and physics without the necessity of buying new texts for each class.

WRITE FOR YOUR  
EXAMINATION COPY NOW TO:

### APPLETON-CENTURY-CROFTS

Division of Meredith Publishing Company  
440 Park Avenue South  
New York, New York 10016

